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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,691	12/26/2000	Mitchell R. Swartz		4269

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EXAMINER	
PALABRICA, RICARDO J	

ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/748,691	Applicant(s) SWARTZ, MITCHELL R.	
	Examiner Rick Palabrica	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *28 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's election with traverse (in part) in Paper No. 9, dated 1/28/02, is acknowledged.

Applicant elected without traverse invention I (method claims 1-14) and species A (hydrogen for the isotopic fuel).

Applicant elected with traverse species L (palladium for the material).The traversal is on the ground(s) that the species election requirement for the material is indefinite and may not be proper. This is not found persuasive because the species being subjected to election is clearly identified in section 3, page 4 of the 12/17/01 Office Action and said species are disclosed in applicant's claim 6. The species election requirement is based on the examiner's determination of the species being "patentably distinct." The applicant's traversal implies that the species are not patentably distinct and are obvious variants of each other. If so, then applicant should clearly admit on record that this is the case in a response to this Office Action.

The requirement is still deemed proper and is therefore made **FINAL**.

2. The applicant has filed the current application as a division of an earlier application, S/N 07/760,970 filed on 9/17/91. However, it does not qualify as such because it contains subject matter that was not disclosed in the earlier application (e.g. see MPEP 201.06).

Note that the earlier application states that the invention relates to "electrochemical nuclear fusion in or about metals, such as palladium, which has been electrochemically loaded with deuterium, but has relevance as well to cold nuclear fusion in pressure-loaded metals such as titanium or palladium filled with deuterium and to the broader field of nuclear fusion in or about metals, including Group IVb, Vb and some rare earths" (see page 3).

In contrast, the current application states that the invention relates to electrochemical reactions in or about metals, such as palladium, which has been electrochemically loaded with deuterium, but has relevance as well to hydrogen storage fuel cells, nuclear fusion and other reactions, in pressure-loaded metals such as titanium or palladium filled with deuterium and to the broader field of metallurgy and engineering in or about metals, including Group IVb, Vb and some rare earths" (see page 2). (Underlining provided).

Accordingly, the current application cannot claim priority of the filing date of the earlier application because of the above differences in the subject matter covered (e.g., electrochemical nuclear fusion product for the earlier application vs. electrochemical reaction product for the current application).

Specification

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. This application does not contain an abstract of the disclosure, contrary to the requirement of 37 CFR 1.72(b). An abstract on a separate sheet is required.

4 The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure.

The specification contains references throughout to the production of "desired reactions" with the isotopic fuel (e.g., deuterium) upon full charging of the cathode with deuterons and, the application of the second applied electric field.

The specification on page 2, identifies these "desired reactions" as electrochemically-induced, nuclear fusion reactions in metals (such as deuterium-loaded palladium). Hence the only possible "products" that can be formed in the disclosed and claimed method are nuclear fusion products. Indeed, such is even

attested to by applicant's parent application S/N 07/760,970, as well as the two applications referred to on page 2 of the applicant's specification.

Additionally, the specification on page 3, lines 1 and 2, and on page 7, top paragraph, refers to the generation of energy, specifically heat energy, by the desired reactions of the isotopic fuel (e.g., deuterium) in the loaded cathode metals. Said heat energy being directed out via heat pipes and thermal bus. This production of heat energy from the reactions among the deuterons in the loaded cathode has become known in the art as "excess heat."

This reference to production of electrochemically-induced "nuclear reactions" and "excess heat" within an electrolytic cell has become known in the art as "cold fusion."

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces "nuclear reactions" or "excess heat", that any allegations or claims of the production of excess heat due to nuclear and/or chemical reactions are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions and excess heat by "cold fusion" was in general, publicly announced by Fleischmann and Pons (hereinafter referred to as "F and P") on March 23, 1989 (see the 3/24/89 article by D. Braaten). Applicant's invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P.

As set forth more fully below, this "cold fusion" concept of producing nuclear reactions, including energy generation (known in the art as "excess heat"), is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g., see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., MisKelly et al. and Chapline).

Note for example, that Kreysa et al. al on page 440 state that , "We have repeated the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of ±5%." Kreysa et al. also refer to various possible sources of error which could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See for example (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al, Cribier et al., Hajdas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post.

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings", note the article by Salamon et al.). Also of interest in this respect is the Cooke reference which, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascatti-type (i.e. gaseous) experiments.

The last paragraph on said page 5 states:

"After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final results of this monumental effort in

the words of the official press release was, " In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells." (Underlining added).

Applicant's specification contains assumptions and speculation as to how and in what manner, his invention will operate. However, applicant has presented no reputable factual evidence to support his assumptions and speculation regarding a reproducible, sustainable excess heat (cold fusion) and low temperature reaction reactions.

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce excess heat, neutrons, or any other nuclear reaction product.

The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable excess heat (cold fusion) and low temperature nuclear reaction, and, as to what would cause such reactions to actually take place in the applicant's system.

On page 5, lines 4-6 of the specification, the applicant discloses a not shown power supply and control unit consisting of a current source and reactor control device. However, there is neither an adequate description of the elements that form said power supply and control unit nor enabling disclosure of how and in what manner the elements are interconnected for the claimed invention. Also, there is neither an adequate description nor enabling disclosure of how and in what manner these

elements function as one, integrated system to achieve the objectives of the claimed invention.

On page 5, lines 6-8 of the specification, the applicant discloses that the not shown power source "creates an applied electric field intensity which produces cation flow towards the cathode." However, there is neither an adequate description nor enabling disclosure of how and in what manner the not shown power supply so produce the said cation flow.

On page 5, lines 9-10 of the specification, the applicant states that "there is a build-up of deuterons and a low dielectric constant in the near cathode solution." However, there is neither an adequate description nor enabling disclosure of how and in what manner the deuteron build-up and low dielectric constant are achieved. The disclosure is also insufficient as to what actually is "low dielectric constant".

On page 5, line 11 of the specification, the applicant states that "there may be spikes or on the cathode *(sic)*." However, there is neither an adequate description of what constitutes a "spike" nor enabling disclosure of how and in what manner this spike was produced and what effect, if any, does the spike have on the performance or integrity of the system.

On page 5, lines 13-15 of the specification, the applicant discloses that the first electric field is applied to "charge the palladium with deuterons," However, there is neither an adequate description nor enabling disclosure of how and in what manner such charging is achieved.

On page 5, lines 15-16, the applicant further states that the "second electric field intensity is delivered after full charging has been achieved." However, there is neither an adequate description nor enabling disclosure of how and in what manner one would

determine whether "full charging" has been achieved – by calculation, measurement or both? The disclosure is insufficient as to exactly what concentration of isotopic fuel in the metal represents "full charging" (this term is undefined). Note that this deficiency of the disclosure with respect to the requisite concentration of isotopic fuel in the cathode, applies to each of the applicant's fuels of an isotope of hydrogen, boron, lithium and potassium.

On page 6, lines 5-6, the applicant discloses that the "deuteron-impenetrable barrier(s) act to enhance the desired reactions. However, there is neither an adequate description of what constitutes a "desired reaction" and, where applicable, how does this differ from an "undesired reaction." Also, there is neither an adequate description nor enabling disclosure of how and in what manner said desired reactions would be enhanced by the barriers that are impenetrable to deuterons.

On the corrected paragraph replacing the 2nd paragraph on page 6, the applicant states "these devices contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuteroxide (labelled 6), and anode (labelled 7) *(sic)."* However, there is neither an adequate description nor enabling disclosure of how and in what manner these elements function individually and, as a complete unit, to achieve the object(s) of the claimed invention.

On the corrected paragraph replacing the 3rd paragraph on page 6, the applicant discloses that the CAM devices are held in place by "clips". However, there is neither an adequate description of these clips nor enabling disclosure of how and in what manner said clips so hold said devices. On the same paragraph, the applicant further discloses connection of the CAM device to a microprocessor control system. However, there is neither an adequate description nor enabling disclosure of how and in what

manner said microprocessor is so connected to the device. Additionally, there is neither an adequate description nor enabling disclosure of how and in what manner said microprocessor so provides control, e.g., what parameters are controlled, what ranges of values are acceptable, etc.

On the corrected paragraph replacing the 2nd paragraph on page 7, the applicant discloses that "the purpose of the receptor apparatus is first to integrate the three (or more) CAM reactor units." However, the terms "receptor apparatus" and "integrate" are vague and undefined. Also, there is neither an adequate description nor enabling disclosure of how and in what manner such integration is so achieved. In the same paragraph, the applicant discloses "separating the cathodic buses" after loading the cathode. There is neither an adequate description nor enabling disclosure of how and in what manner this separation is so achieved.

Applicant's claimed method of low temperature electrolytic nuclear reactions is practiced on an apparatus of non-cold fusion art (e.g. Westfall [U.S. 5,215,631] or Kinsella et al. [U.S. 3,682,806]) that is identical to the applicant's, and, these apparatuses are all operated in an identical manner, i.e., the application of orthogonal electric fields.

Note that it is well-settled case law that identical apparatuses operated in the same manner, must produce identical results.

There is accordingly, neither an adequate description nor enabling disclosure of how and in what manner, applicant's invention is able to produce low temperature electrolytic nuclear reactions and excess heat whereas, the identical systems and methods of operation in either Westfall or Kinsella et al., presumably did not produce said low temperature electrolytic nuclear reactions and excess heat.

Assuming for the sake of argument that applicant's invention does function in a different manner to produce a different result from that of any of Westfall or Kinsella et al., it can only be because applicant's invention actually contains some additional critical feature(s), component(s), etc., not found in any of said references which is necessary to enable applicant's invention to function differently from any of said references so as to be able to produce a different result.

Accordingly, the disclosure is insufficient in failing to disclose said additional critical feature(s), component(s), etc., necessary to cause applicant's invention to operatively function in a different manner to produce a result different from that of said references.

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the production of a product merely by: supplying said isotopic fuel to said material, loading said isotopic fuel into said material, and applying in combination two non-parallel applied electric fields (e.g., see claim 1).

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the production of a product merely by: supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and applying the second electric field to redistribute said isotopic fuel (e.g., see claim 10).

There is neither an adequate description nor enabling disclosure of the purpose of the application of the magnetic field, nor of how and in what manner, the applied magnetic field intensity is caused to be inhomogeneous (as in claim 9), nor of how and in what manner one can create a gradient in the intensity of the magnetic field (as recited in claim 13).

Clearly, when an artisan or experimenter is relying on the experimental results of particular tests or experiments to establish certain facts, i.e., the production of excess heat and of low temperature nuclear reactions, it is incumbent upon the experimenter to show that the alleged experimental results of excess heat and low temperature nuclear reactions, are valid and not just the results of experimental errors or misinterpretations of experimental data (and that the alleged experimental results do not fall within the limits of experimental errors).

There is thus no reputable evidence of record to support the assumption and speculation that the invention would actually operate as indicated and produce the desired results as indicated.

It is not seen wherein the specification discloses any particular structure, etc., which is unique to the applicant's system and which would make the applicant's cold fusion system operative whereas the systems disclosed in the above referenced "numerous teachings by skilled artisans," were not operative.

There is neither an adequate description not enabling disclosure of the parameters of a specific operative embodiment of the invention, including atomic or weight ratio of metal electrodes to electrolyte (e.g. palladium to gel), dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them), voltage and current requirements to produce the orthogonal electric fields and the magnetic field, surface area-to-volume requirement for the reactor, minimum concentration of the isotopic fuel in the cathode necessary for the desired reactions to take place, the exact composition (including impurities and amounts thereof) of the electrolyte and of the cathode and of the anode, etc. These impurities can have an adverse effect on the desired operation of the invention.

It is apparent from the specification that applicants' concept or theory involves a "cold fusion" system based on the "cold fusion" systems that came about from the work of F and P, is workable or operative, only if these systems are already operative.

However, as set forth above, the examiner has presented evidence showing that in such cold fusion systems, the claims of excess heat (as well as of other nuclear reaction products), are not reproducible or even obtainable. It consequently must follow that the claims of excess heat or nuclear reactions are not reproducible of even obtainable with applicant's invention. While applicant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative embodiment. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See *Bank v. Rauland Corp.*, 64 U.S.P.Q. 93; *In re Corneil et al.*, 145 U.S.P.Q. 697.

To reiterate briefly, the examiner has presented evidence, that neither the situation of excess "heat" nor or other, nuclear reaction products, can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative system that produces nuclear fusion or even "excess heat", i.e., that he has progressed his system beyond the point of an unproven theory of concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the applicant itself to inform, not to direct others to find out for themselves; In re Gardner et al, 166 U.S.P.Q. 138, In re Scarborough, 182 U.S.P.Q. 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; In re Hirsch, 131 U.S.P.Q. 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the inventions as disclosed is inoperative are the same as the reasons set forth in section 4 above as to why the specification is objected to and the reasons set forth in section 4 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the "phenomena attributed to cold fusion would produce useful sources of energy".

The applicant at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See *Brenner v. Manson*, 148 U.S.P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by applicant. Note *In re Houghton*, 167 U.S.P.Q. 687 (CCPA 1970); *In re Ferens*, 163 U.S.P.Q. 609 (CCPA 1969); *Puharich v. Brenner*, 162 U.S.P.Q. 136 (CA DC 1969); *In re Pottier*, 152 U.S.P.Q. 407 (CCPA 1967); *In re Ruskin*, 148 U.S.P.Q. 221 (CCPA 1966); *In re Citron*, 139 U.S.P.Q. 516 (CCPA 1963); and *In re Novak*, 134 U.S.P.Q. 335 (CCPA 1962).

Claim Rejections - 35 USC § 112

6. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reasons that the inventions as disclosed are not enabling are the same as the reasons set forth in section 4 above as to why the specification is objected to and the reasons set forth in section 4 above are accordingly incorporated herein.

7. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete.

As to claims 1-9, the preamble of claim 1 discloses a process for producing a product using a material loaded with an isotopic fuel. This implies that the process is applied to a material that already contains isotopic fuel. However, the body of the claim discloses supplying and loading said isotopic fuel into the material. These claims are vague, indefinite and incomplete as to whether the process supplies and loads additional isotopic fuel to the material that already contains isotopic fuel, i.e., does the claim imply multiple loading of fuel? The claim preambles are directed to a process for

producing a product, however, the bodies of the independent claims fail to recite a specific step of producing said product , as well as a specific step of controlling said product, and, the claims are hence vague, indefinite and incomplete. See also MPEP 2172.01.

The claims are also vague, indefinite and incomplete as to what is actually the product.

As indicated in sections 8 and 9 below, either one of Westfall or Kinsella et al. illustrate an electrolytic process that is identical to that recited in said applicant's claims. Applicant's disclosure indicates that his process results in the generation of heat energy because his apparatus is claimed to have a thermal bus connected to heat pipes (e.g. see corrected 4th paragraph on page 6). This implies that the thermal bus-heat pipe combination extracts heat generated by the applicant's apparatus. Neither Westfall nor Kinsell et al. specifically disclose the generation of low temperature nuclear reactions and the generation of sufficient heat energy such as to require removal thereof. Assuming for the sake of argument that Westfall's or Kinsella et al.'s system is not capable of producing such nuclear reactions and heat energy, applicant's claims are incomplete in failing to recite the additional critical structure and/or method steps (not found in Westfall or Kinsella et al.) that are actually necessary to produce applicant's indicated heat energy and nuclear reactions.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631).

Westfall discloses a process for growing crystals by electrodeposition. He teaches that his invention has use in growing palladium, titanium and other metal crystals for "cold fusion" electrodes (e.g., see column 1, lines 36+, column 2, lines 37+, and column 3, lines 32+). His method uses the electrolytic apparatus shown in Fig. 1 comprising a bath (4) between a working electrode 8 (where the crystal growth occurs) and a counter electrode (which replenishes the electrolytic solution's concentration of ions of the to-be-deposited material. The bath is used by passing current between the working and counter electrodes (e.g. see column 4, lines 25+). Westfall further discloses that palladium can be deposited from the more common aqueous systems (see column 7, lines 25+). Table 1 lists metals that can be grown from an aqueous solution, including palladium, and the more common anion and cation components. He teaches that hydrogen is generated in an aqueous system (e.g. see column 9, lines 32+).

Westfall further discloses the use of orthogonal electric fields as part of the nucleation manipulation techniques for crystal growth control. He states that orthogonal electric fields are generated by the use of "conformal" counter electrodes with configurations such as wire-tubular, sphere-spherical, cube-cubical torus-toroidal, etc. (see column 24, lines 11+).

Westfall also discloses conformal electric fields may be used in combination with one or more nucleation manipulation techniques, such as magnetic fields (se column 24, lines 55+).

Note that applicant's claimed "isotopic fuel" reads on the hydrogen generated by Westfall's aqueous solution and his "material" reads on Westfall's "working electrode."

Note also that the limitation of claims 3, 4 and 10 regarding the electric fields and their sequential application read on Westfall's aqueous electrochemical process. The electric field resulting from application of a voltage between the working electrode and counter electrode, which reads on applicant's "first electric field", primarily causes the movement of ions (including hydrogen ions) from the bath to the working electrode. This process reads on applicant's "loading isotopic fuel to the material." Westfall also discloses that the orthogonal fields, which result from a conformal counter electrode configuration, provide control of nucleation (see column 24, lines 1+). He further discloses that nucleation controls growth of crystals (e.g., see column 5, lines 1+). Conformal electric fields result in near uniform intensities and near uniform ion diffusion distances promoting superior deposition system stability (e.g., see column 24, lines

30+). Therefore, the orthogonal field resulting from a conformal counter electrode configuration and its beneficial effect on crystal formation read, respectively, on applicant's "second electric field" and it's effect of "redistribution of the fuel within the material." Clearly, the first electric field must first effect movement of ions from the electrolytic bath towards the working electrode before the orthogonal electric field can effect control of distribution of these ions to form the desired crystal growth.

Note further that claims 8, 9 and 13 are anticipated by Westfall's method that provides for application of magnetic field, in addition to electric fields (e.g. see column 24, lines 59+). As to the specific limitation in claim 8 regarding an "inhomogeneous magnetic filed," any applied magnetic field will have "inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such.

As to claim 14, note that the Westfall's working electrode can either be a cathode or an anode (see column 4, lines 26 and 27).

9. Claims 1, 2 , 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al.(U.S. 3,682,806). Kinsella et al. disclose a process for electroplating metallic articles with carboxylic film-forming materials utilizing lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). Fig. 1 shows the anode (4), which

is the material to be coated, a stainless steel cathode (6). An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8). The electrodeposition current flows from the anode (4) to the stainless steel cathode (6). An auxiliary direct current (referred to as "regeneration current") is applied between the auxiliary electrodes, the direction of the current being orthogonal to the direction of the electrodeposition current (see column 9, lines 65+). Note that applicant's "isotopic fuel" in the claim language reads on the lithium anions that form on the anode, "material" reads on "anode", and "orthogonal electric fields" reads on the orthogonal fields produced by the electrodeposition current and the regeneration current.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-7, 10-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01601) or Edwards (WO 90/15416) in view of Westfall. Either one of Cedzynska et al. or Edwards et al. disclose the applicant's claims except for the orthogonal electric fields.

Cedzynska et al. disclose a method for electrolytically loading isotopic hydrogen into a palladium or palladium alloy electrode by alternately charging and discharging the

electrode in a plurality of cycles, each cycle including charging of the electrode with isotopic hydrogen approximately to a saturation level and then discharging the electrode to a predetermined retention level see Abstract, page 9 and Fig. 1).

Edwards disclose a method for production of thermal energy comprising passing an electric current through electrodes immersed in a liquid electrolyte containing a higher isotope of a low atomic weight atom and applying a magnetic influence to the electrolyte or one or each electrode. The electrolyte may contain lithium and the electrode can be palladium or titanium (see Figs. 1 and 2, and claims).

As discussed in section 8 above, Westfall discloses an electrodeposition process using orthogonal electric fields.

One having ordinary skill in the art would have recognized that the method and apparatus of Cedzynska et al. or Edwards are similar to that of Westfall, in terms of having an electrochemical means of depositing a light element such as hydrogen into a metal such as palladium. He would have also recognized that application of orthogonal electric fields is advantageous because it provides better control of the process.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by either one Cedzynska et al. or Edwards, by the teaching of Westfall, in order to obtain a method of producing and controlling the production of a product using a material loaded with an isotopic fuel, comprising: a) supplying said isotopic fuel to said material; b) loading said isotopic fuel into said; and c) applying sequentially two orthogonal electric fields, to gain

the advantages thereof, because such modification is no more than the use of conventional techniques within the nuclear art.

11. Claims 8, 9 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Cedzynska et al. in view of Westfall, as applied to claims 1-7, 10-12, and 14 above, and further in view of anyone of Edwards, Sadoway (WO 91/06959) or Van Noorden (NL 8909-962-A) or Dufour (WO 91/01036). The combination of Cedzynska et al. and Westfall disclose the applicant's claims except for the use of magnetic fields in fusion.

Anyone of the cited secondary references cites the application of a magnetic field as part of a claimed electrolysis-nuclear fusion process. See for example page 2 of Westfall, abstract and claims of Sadoway, abstract of Van Noorden, and page 8 of Dufour. One having ordinary skill in the art would have recognized the claimed advantage of applying a magnetic field to enhance a purported nuclear fusion process.

As to the limitations regarding creating a gradient in the intensity of magnetic field and having an inhomogeneous magnetic field, any magnetic filed applied across any material will inherently produce a gradient in the intensity of said field within the material. As to the inhomogeneity of said field, as stated in section 8, any applied magnetic field will have "inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Cedzynska et al. – Westfall combination, by the teaching of anyone of Edwards, Sadoway, Van Noorden or Dufour to have a magnetic field, in addition to the orthogonal electric fields, in order to gain the advantages thereof, as this is no more than the application of well-known techniques in the nuclear art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B -F further illustrate prior art.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, telephone number is 703-308-1113.

RJP
June 28, 2002

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